

What is claimed is:

1. A planographic printing method, comprising the steps of:

uniformly providing a layer of a hydrophobic substance on an original printing plate having photo catalyst power;

5 forming a distribution of a hydrophilic area and a hydrophobic area as per image by heating the surface of said original plate to a temperature ranging from 40 through 200° C and irradiating activation light thereonto; and

performing printing by said hydrophobic areas

10 accepting printing ink.

2. The planographic printing method according to Claim 1, wherein at least irradiating by said activation light is carried out as per image.

3. The planographic printing method according to Claim 1, wherein at least heating to said temperature ranging from 40 through 200°C is carried out as per image.

4. The planographic printing method according to Claim 1, wherein heating of said original plate to said temperature ranging from 40 through 200°C is carried out by light irradiation simultaneously with irradiating said activation light, and said
5 activation light is irradiated so that the area thereof is included in an irradiation area for heating.

5. The planographic printing method according to Claim 3, wherein heating of said original plate to said temperature ranging from 40 through 200°C is carried out by light irradiation simultaneously with the irradiation of said activation light, and a heating light is irradiated so that the area thereof is included in an irradiation area of said activation light.

6. The planographic printing method according to Claim 1, wherein the method for providing the layer of said hydrophobic substance is selected from the group consisting of a coating process, a spraying process, a vaporizing condensation process, a gas contact process, and an immersing and coating process.

7. The planographic printing method according to Claim 1, wherein said hydrophobic substance is one of a sublimating solid and a volatile liquid, and a gas of said hydrophobic substance is condensed on the surface of said original printing plate to provide the layer of said hydrophobic substance.

8. The planographic printing method according to Claim 1, wherein said hydrophobic substance is a macromolecular organic compound, and one of a solution and granular dispersoid of said macromolecular organic compound is sprayed onto the surface of said original printing plate to provide the layer of a hydrophobic substance.

9. The planographic printing method according to Claim 1, wherein ink is removed from a printing plate once used for printing, and said printing plate is reused as an original printing plate.

10. An original plate for planographic printing having photo catalyst power and used for printing by a planographic printing method, comprising the steps of:

uniformly providing a layer of a hydrophobic substance
5 on an original printing plate having photo catalyst power;

forming distributions of hydrophilic and hydrophobic areas as per image by heating the surface of said original plate to a temperature ranging from 40 through 200°C and irradiating activation light thereonto; and

10 performing printing by said hydrophobic areas accepting printing ink.

11. The original plate for planographic printing according to Claim 10, wherein the surface of said original plate for planographic printing, as a substance having photo catalyst power, comprising:

5 a metal oxide selected from the group consisting of TiO_2 , $RTiO_3$ (R is an alkaline earth metal atom), $AB_{2-x}C_xD_{3-x}ExO_{10}$ (A is a hydrogen atom or alkaline-metal atom, B is an alkaline earth metal atom or lead atom, C is a rare-earth atom, D is a metal

atom belonging to the group 5A elements of the periodic table,

10 E is a metal atom belonging to the group 4A elements, and X indicates an optional figure from 0 through 2), SnO_2 , ZrO_2 , Bi_2O_3 , ZnO and iron oxides expressed in terms of FeO_x ($x = 1$ through 1.5).

12. The original plate for planographic printing according to Claim 10, wherein a heat insulating layer is provided between a layer having photo catalyst power and a substrate.

13. An planographic printing press, comprising:

a mounting section for mounting an original printing plate having photo catalyst power;

5 a processing section for hydrophobically processing the entire surface of said original plate on which a layer of a hydrophobic substance is provided;

an activation light irradiation section for irradiating activation light one of on said original printing plate carrying the layer of said hydrophobic substance as per image and on the entire surface thereof;

10 a heating section for heating said original plate during irradiating said activation light so that the temperature of the surface of said original plate becomes 40 through 200°C one of as per image and on the entire surface thereof, so that
15 a hydrophobic area and a hydrophilic area are formed on said original plate;

a section for supplying an ink to said hydrophobic area and for supplying a damping solution to said hydrophilic area; and

20 a printing section for printing by bringing a printing surface, on which said hydrophobic area accepts the ink and said hydrophilic area accepts the damping solution, into contact with a surface to be printed.

14. The planographic printing press according to Claim 13, wherein said heating section includes a heating device for heating said original printing plate by irradiating light for maintaining the surface of said original printing plate at a
5 predetermined temperature during irradiating said activation light.

15. The planographic printing press according to Claim 13, wherein said heating section includes a heating device for heating said original printing plate by electric heating for maintaining the surface of said original printing plate at a
5 predetermined temperature during irradiating said activation light.